An Use case for VM's
Power-hungry Compute Clusters

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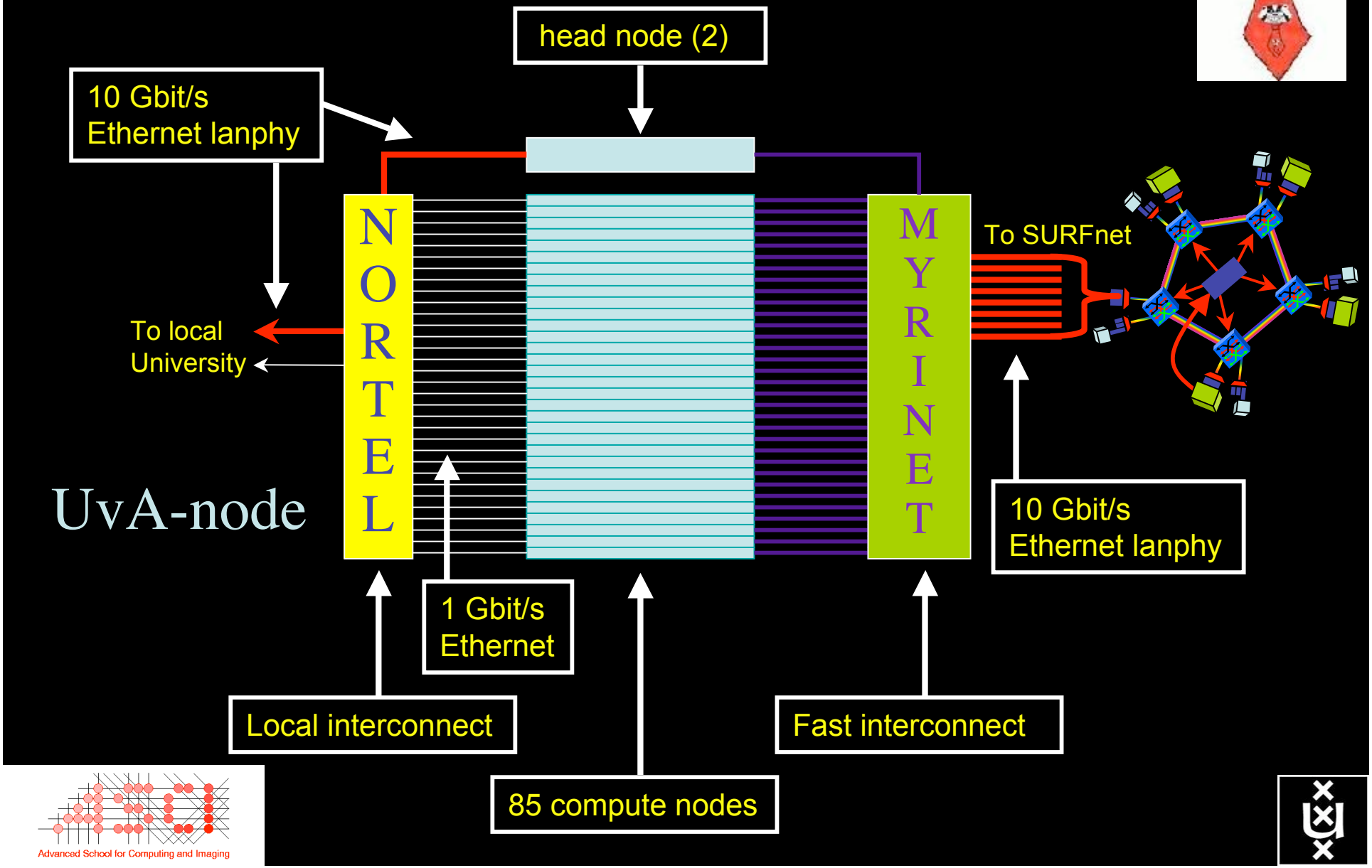
DAS-3 Cluster Tender

http://www.clustervision.com/pr_das3_uk.html



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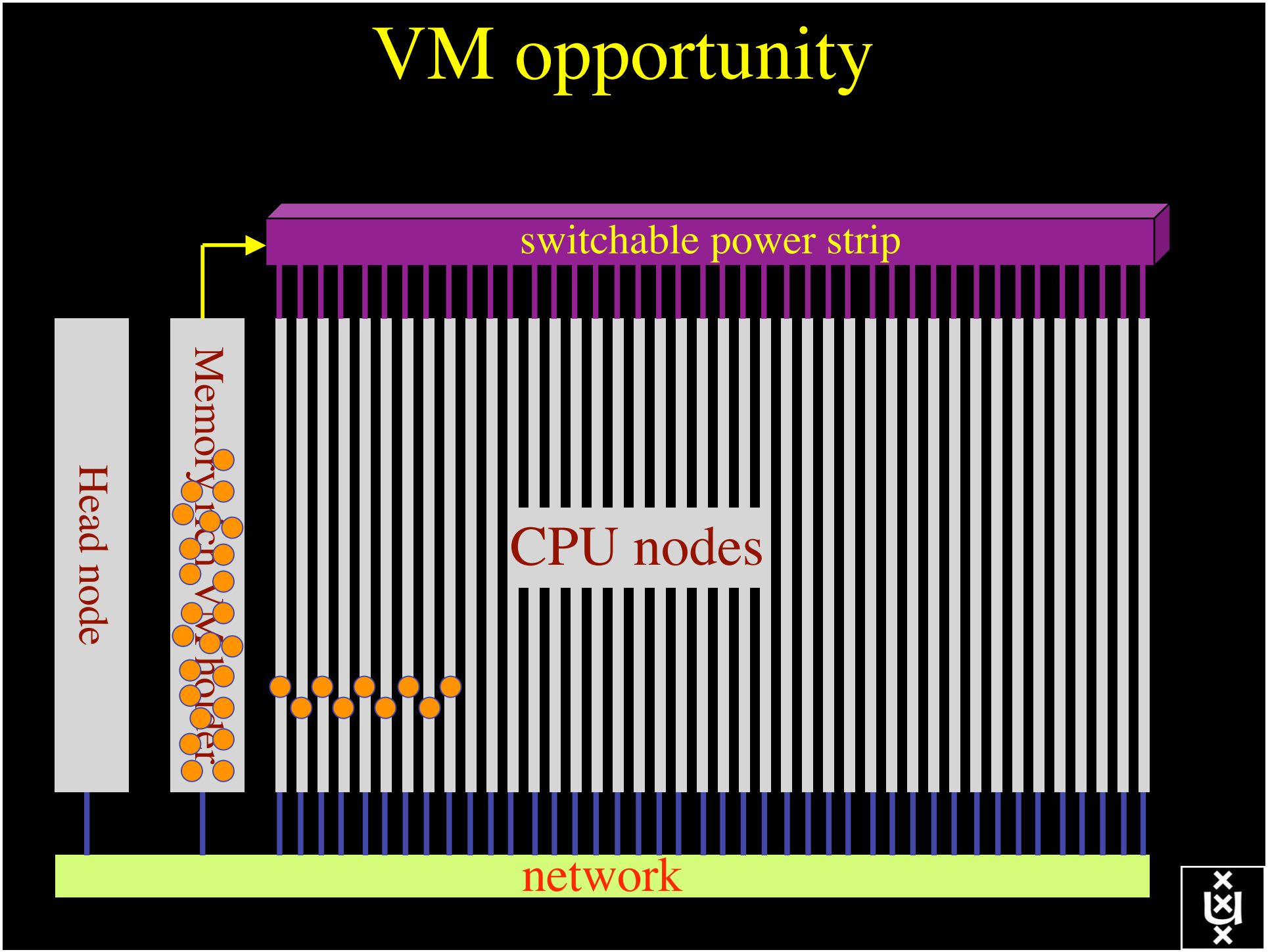
Power is a big issue

- UvA cluster uses 30 kWh
- 1 kWh ~ 0.1 €
- per year -> 26 k€/y
- cooling -> 39 k€/y
- Emergency power system -> 60 k€/y
- per rack 10 kWh is now normal

Power outages are a big problem

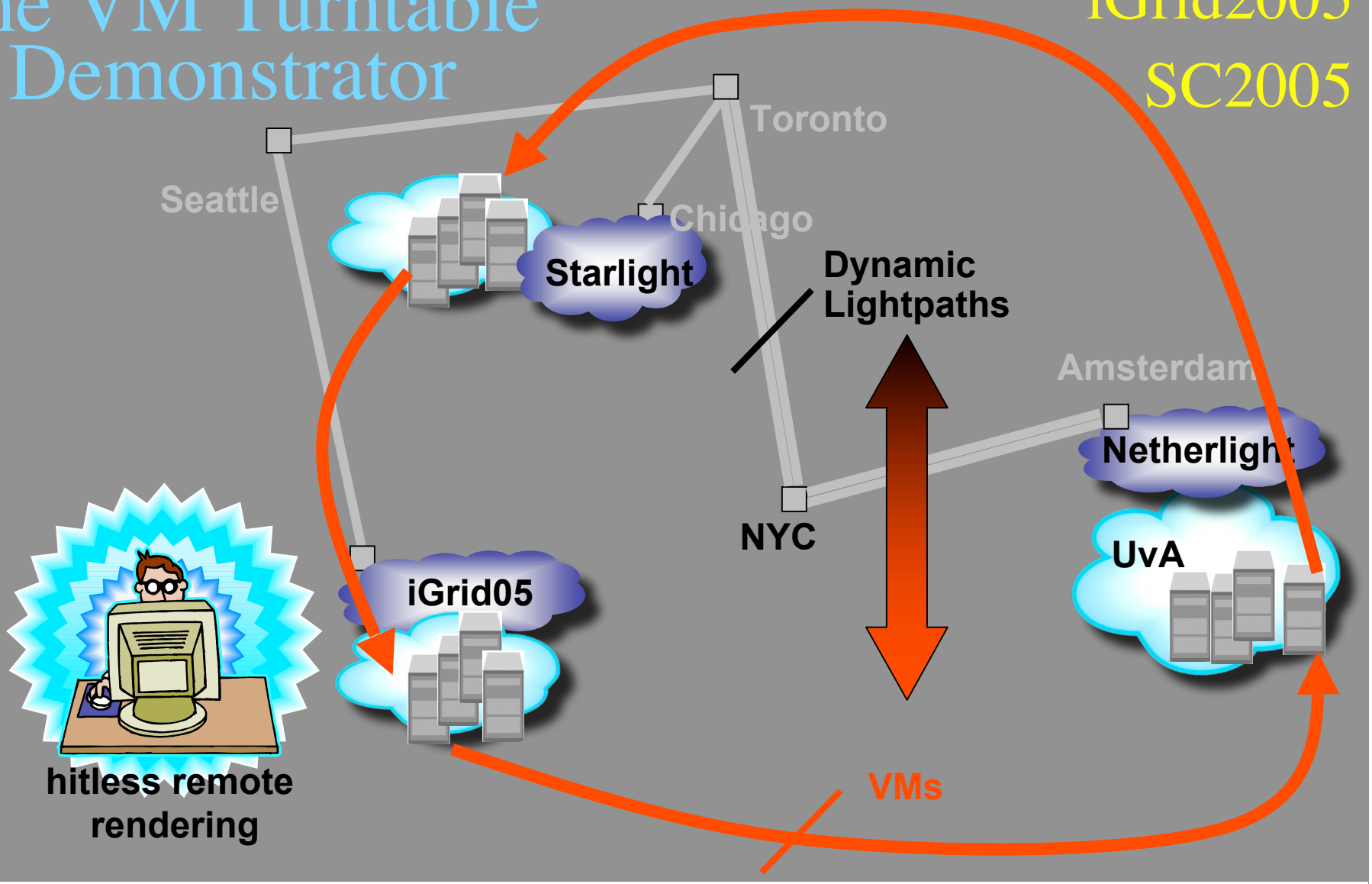
- on average about one outage per year
  - once the generator not starting/taking over
  - recently explosion of cable -> generator fine!
- battery power for 5 minutes, generator to take over
- priorities for emergency power/cooling

VM opportunity



The VM Turntable Demonstrator

iGrid2005
SC2005



The VMs that are live-migrated run an iterative search-refine-search workflow against data stored in different databases at the various locations. A user in San Diego gets hitless rendering of search progress as VMs spin around

Other VM opportunity

- run grid in a grid
- every project its own favorite suite on favorite Linux version
  - Glite in EGEE
  - Teragrid
  - Rock-Roll in OptIPuter
- Solution -> run entire system+app in VM as stupid app on other grid

Questions ?

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